Docket No.: PF112P6

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Timothy A. Coleman

Application No.: 09/921,143

Group Art Unit: 1653

Filed: August 3, 2001

Examiner: Not Yet Assigned

For: Vascular Endothelial Growth Factor 2

PETITION UNDER 37 C.F.R. § 1.137(b) FOR REVIVAL OF AN UNINTENTIONALLY ABANDONED APPLICATION

Box DAC

Assistant Commissioner for Patents Washington, D.C. 20231

Applicant hereby petitions for revival of an abandoned application under 37 C.F.R. § 1.137(b). The application was unintentionally abandoned due to an incomplete response that was filed to the Notice to File Missing Parts of Nonprovisional Application, which was mailed on September 27, 2001. Applicant submits concurrently herewith: (1) a fee transmittal with appropriate fees and (2) Exhibits A-C.

I. Background

Although no written notice of abandonment has been received, on Wednesday, May 14, 2003, Applicant's representative, Melissa Pytel, was notified by a phone call from Ms. Roxanne Rawls of the United States Patent and Trademark Office ("PTO"), that the present application was abandoned. Applicant asserts that the abandoned status of the instant application occurred despite the exercise of due care and diligence on the part of Applicant and Applicant's representatives.

A timeline of events is provided below.

September 27, 2001: A "Notice to File Missing Parts of Nonprovisional Application" was mailed (hereinafter referred to as "the Notice"). A copy of the Notice is included herewith as Exhibit A. The Notice indicated that the Oath or Declaration was

unsigned, that a late filting fee surcharge of \$130 was due and that substitute drawings were required. Specifically, the Notice indicated that the drawing sheets did not have the appropriate margins in compliance with 37 C.F.R. § 1.84.

November 20, 2001; Applicant filed a timely response to the Notice by providing an executed Declaration and authorizing the Commissioner to charge the proscribed fee to Deposit Account No. 08-3425 (hereinafter referred to as "the Response"). A copy of the Response, along with the date-stamped return receipt postcard, is included herewith as Exhibit B. Inadvertently, the timely response submitted by Applicant did not include a submission of corrected drawings.

February 4, 2002; March 12, 2002; April 18, 2002; August 16, 2002; and September 12, 2002: Subsequent to filing the Response. Applicant diligently maintained the instant application by filing multiple Information Disclosure Statements on February 4, 2002; March 12, 2002, April 18, 2002, August 16, 2002; and September 12, 2002, in accordance with Applicant's duty of disclosure under 37 C.F.R. § 1.56.

December 13, 2002: Applicant mailed a Status Inquiry to be advised of the status of the instant application, because Applicant had not received any correspondence from the PTO subsequent to the mailing of Applicant's November 20, 2001 Response.

April 1, 2003 (approx.): Applicant's representative, Lin Hymel, received a phone call from Ms. Roxanne Rawls regarding the instant application.

April 9, 2003. After several attempts to contact Ms. Rawls, Applicant's representative, Melissa Pytel, spoke with Ms. Rawls regarding the instant application. At this time, Ms. Rawls merely requested a submission of replacement drawings. The status of the application was not discussed.

April 17, 2003. In response to the discussion with Ms. Rawls, Applicant prepared and filed Replacement Formal Drawings.

May 14, 2003: Ms. Rawls contacted Melissa Pytel, indicating that a Pennon to Revive an Abandoned Application would need to be filed due to the incomplete response to the Notice to File Missing Parts.

May 21, 2003: After multiple phone calls with Ms. Rawls, in which alternatives to filing a Peution to Revive an Abandoned Application were discussed, Applicant's representative, Melissa Pytel contacted Ms. Doshie Day in the Office of Initial Patent

Application No.: 09/921,143

Docket No.: PF112P6

Examination (OIPE) to inquire whether a notice under 37 C.F.R. § 1.135(c) could be issued to avoid abandonment of the Application, since Notice of Abandonment had not been received by Applicant. Ms. Day indicated that she would discuss this case with someone in the Petitions Branch.

May 22, 2003: Applicant's representative, Melissa Pytel, left a message with Ms Day, inquiring whether Ms. Day had the opportunity to speak with Petitions.

May 23, 2003: Applicant's representative, Melissa Pytel, left a message with Ms. Day, indicating that she (Melissa) would be out of the office the following week and that Michele Wales could be contacted in her absence.

May 29, 2003. Applicant's representative, Michele Wales, contacted Ms. Day to discuss the status of the application. Ms. Day confirmed that a Petition to Revive would have to be filed.

June 5, 2003: Applicant's representative, Melissa Pytel, checked the status of the Application in the Patent Application Information Retrieval (PAIR) system. As of June 5, 2003, the Application was still not indicated as abandoned.

II. Petition to Revive

Pursuant to 37 C.F.R. § 1.137(b), Applicants are required to submit a complete reply to the Notice to File Missing Parts, which was mailed on September 27, 2001 and the petition fee set forth in 37 C.F.R. § 1.17(m). Although Applicant previously filed Replacement Formal Drawings on April 17, 2003, copies of the Replacement Formal Drawings as filed April 17, 2003 and accompanying documents are included herewith as "Exhibit C." Applicant hereby authorizes the Commissioner to charge the proscribed petition fee under 37 C.F.R. § 1.17(m) to Deposit Account No. 08-3425. Applicant also asserts that the emire delay in filing the reply was unintentional, from the due date for the reply until the filing of the instant petition, as demonstrated by the evidence provided above.

Furthermore, as required by the Manual of Patent Examining Procedure (M.P.E.P. § 711.03(c)(III)(D) at page 700-154-155 (8th Ed. 2001)) when a Petition to Revive is not filed within one year of the effective date of abandonment, Applicant submits that the evidence provided above shows that Applicant only became aware of the abandonment of

3

Application No.: 09/921,143

Docket No.: PF112P6

the instant application on May 14, 2003. Applicant further submits that the evidence provided above demonstrates how the delay in discovering the abandoned status of the instant application occurred despite the exercise of due care or difference on the part of the Applicant, or Applicant's representative.

In sum, the instant application became abandoned due to the unintentional delay in responding to the Notice. Applicant has satisfied all of the requirements under 37 C.F.R. § 1.137(b) by providing (1) a complete reply to the Notice to File Missing Parts; (2) the petition fee set forth in 37 C.F.R. § 1.17(m); and (3) a statement that the entire delay in responding in full from the due date for the reply until the filing of the instant petition pursuant to 37 C.F.R. § 1.137(b) was unintentional. Furthermore, Applicant has satisfied the additional requirements where a petition pursuant to 37 C.F.R. § 1.137(b) is not filed within one year of the effective date of abandonment by: (A) providing information as to when Applicant first became aware of the abandonment of the instant application and; (B) showing how the delay in discovering the abandoned status of the instant application occurred despite Applicant's exercise of due care and diligence.

Applicant hereby requests that the instant petition under 37 C.F.R. § 1.137(b) for revival of an abandoned application due to the unintentional delay by Applicant be granted and the instant application be revived. In the event that an additional fee may be required, please charge the fees to our Deposit Account No. 08-3425.

Dated. June 9, 2003

Respectfully submitted.

Melissa J. Pytel (Registration No., 41,512)

Docket No.: PF112P6

Attorney for Applicant

HUMAN GENOME SCIENCES, INC.

9410 Key West Avenue

Rockville, MD 20850 Phone: 301-610-5764

MMW/MJP/ba

Exhibit A





United States Patent and Trademark Office

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
VASCINACTOR, D.C. 2023

APPLICATION NUMBER

FILING/RECEIPT DATE

FIRST NAMED APPLICANT

attorney docket number

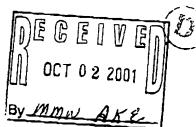
09/921,143

08/03/2001

Timothy Coleman

PF112P6

22195 HUMAN GENOME SCIENCES INC 9410 KEY WEST AVENUE ROCKVILLE, MD 20850



CONFIRMATION NO. 6449
FORMALITIES LETTER
OC000000006803645

Date Mailed: 09/27/2001

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is unsigned.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(I) of \$130 for a non-small entity, must be submitted with the missing items identified in this letter.
- The balance due by applicant is \$ 130.

The application is informal since it does not comply with the regulations for the reason(s) indicated below

The required item(s) identified below must be timely submitted to avoid abandonment:

- Substitute drawings in compliance with 37 CFR 1.84 because:
 - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each
 sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at
 least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom
 margin of at least 1.0 cm. (3/8 inch);

A copy of this notice MUST be returned with the reply.

Customer Service Center

Initial Patent Examination Division (703) 308-1202

Exhibit B

HUMAN GENOME SCIENCES, INC.

Please date stamp als. Jeturn to addressee on reverse side

Applicants: Coleman, T.

Docket No. PF112P6

Application No.: 09/921,143

Filed: August 3, 2001

Title: Vascular Endothelial Growth Factor-2

NON 7 0 2000 ...

Documents Filed Via Hand Delivery on November 20, 2001

1. Postcard (1);

2. Fcc Transmittul for FY 2002 (with appropriate fees) (in duplicate);

3. Copy of Notice to File Missing Parts of Nonprovisional Application Filed Under 37 CFR 1.53(b) dated September 27, 2001;

4 Response to Notice to File Missing Parts;

5 Recordation Form Cover Sheet (in duplicate) and Assignment (2 pp.); and

6. Declaration for Patent Application (2 pp.).

MMW/JLK/kp

Attn.: Legal Department

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Approved to Lee inforcer through the control of the state of the control of t

FEE TRANSMITTAL for FY 2002

(Substitute form)

Patent fees are subject in annual revision

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Total amount of p	אאַחורהנ		\$170.	00

C	umplete if Known
Application Number	09/921,143
Filing Date	August 3, 2001
First Named Inventor	Coleman, T
Expiriner Name	To Be Assigned
Group Art Unit	1653
Attorney Docker Number	PF112P6

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Submitted By		Complete (if applicable)
Name (Pennilizee) Jonathan L. Klein	Registration No. 41,119	Telephone 301-251-6015
Signature the at the		Date: 11/20/21
/ //		, , ,

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Coleman, T.

Application Serial No 09/921,134

Group Art Unit: 1653

Filed. August 3, 2001

Examiner: Not assigned

For.

Vascular Endothelial Growth Factor-2

Attny Docket No.: PF112P6

RESPONSE TO NOTICE TO FILE MISSING PARTS

Commissioner For Patents BOX MISSING PARTS Washington, D.C. 20231 Str.

In response to the Notice to File Missing Parts mailed September 27, 2001, submitted herewith is: (a) an executed Declaration and Power of Attorney, (b) a Fee Transmittal for FY 2002 with appropriate filing fee (in duplicate); and (c) a copy of said Notice.

The Commissioner is hereby authorized to charge the required fee of \$130,00 and any other fee deemed necessary to Deposit Account No. 08:3425.

Respectfully submitted,

Dated: November 20 7001

Jonathan L. Klein

Reg. No. 41 119

Attorney for Applicants

Human Genome Sciences, Inc.

9410 Key West Avenue Rockville, Maryland 20850 301-251-6015 (telephone)

MMW/JLK



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D C 30:231
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APPLICATION NUMBER FILING/RECEIPT DATE FIRST NAMED APPLICANT ATTORNEY DOCKET NUMBER

09/921.143

08/03/2001

Timothy Coleman

PF112P6

22195 HUMAN GENOME SCIENCES INC 9410 KEY WEST AVENUE ROCKVILLE, MD 20850 CONFIRMATION NO. 6449
FORMALITIES LETTER
IMPRIMED TO BE THE PROPERTY OF THE PR

Date Mailed: 09/27/2001

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given TWO MONTHS from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of lime may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is unsigned.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(I) of \$130 for a non-small entity, must be submitted with the missing items identified in this letter
- The balance due by applicant is \$ 130.

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 least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom
 margin of at least 1.0 cm. (3/8 inch);

A copy of this notice MUST be returned with the reply.

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 1 - ATTORNEY/APPLICANT COPY

U.S.T. FENT AND TRADEMARK O. LE

BOX ASSIGNMENTS Case Docket No. PF112P6 U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office

RECORDATION FORM COVER SHEET PATENTS ONLY

To the Honorable Commissioner of Patents and Trademarks. Please record the attached original documents or copy thereof.

1.	Name of conveying party(ies):	2.	Name and address of receiving party(ies).
	Timothy A. Coleman		Name: Human Genome Sciences, Inc. Street Address. 9410 Key West Avenue
	Additional name(s) of conveying party(ies) attached? Yes No No		Chy Rockville, Maryland 20850
3	Nature of conveyance		Additional name(s) of conveying party(ies)
	Assignment		attached? Yes No 🕅
	Execution Date 11/01/01		
4.	Title Vascular Endothelial Growth Factor-2		
5 .	Application number (s) or patent numbers (s)		A. Patent Application No. (s)
	•		09/921.143
	If this document is being filed together with a new applican	ion,	
	the execution date of the application is		Additional numbers attached?
			Yes No 🗵
Ó	Name and address of party to whom correspondence conce	យារបនិ	documents sponing be marien.
	Human Genome Sciences, Inc.		
	9410 Key West Avenue Rockville, Maryland 20850		
	Telephone: 301-309-8504 Facsimile: 301-30	9-84	30
7	Total of applications and patents involved	/ 0	
-8	Total Fee (37 CFR 3.41)		
	Finchosed (By check in total of filing fee and Assignme	nt Re	cordation Fee
	Authorized to be charged to Deposit Account		
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g	Deposit Account No. 08 3425 (Attached dupli	cated	copy of this page if paying by deposit
	account)		
10.	If any additional fees due in connection with the recordation	u of t	this Assignment, please charge the same to
	Deposit No. 08-3425		
11	Statement and Signature		
	The best of my knowledge and belief, the foregoing inform	ation	is true and correct and any attached copy is a
	true copy of the original document		
	4		a /-
	Jonathan L Klein	T.	14200 11/20/01
	Name of Person Signing	Sim	ngture Date
	41,119	~.5	
•	Registration No		
	Total number of pages including cover sheet.	31721	hment and documents [3]

ASSICNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned, Timothy A. COLEMAN, hereby sells, assigns, transfers, and sets over to Human Genome Sciences, Inc. ("Assignee") having a place of business at 9410 Key West Avenue, Rockville, MD 20850, its successors, assigns and legal representatives, his entire right, title and interest including the right to sue and collect for all past, present and future damages, for the United States of America, including all its territories and possessions, and all other countries.

- (a) in and to the invention(s) known as Vascular Endothelial Growth Factor-2 for which application(s) for patent in the United States of America has (have) been executed by the indersigned on November 1, 2001 (also known as United States Application No 09/921,143, and filed August 3, 2001), in any and all applications thereon, in any and all Patent(s) therefor, and
- (b) in any and all applications that claim the benefit of the patent application listed above in part (a), including continuing (continuation, divisional) applications, reissues, extensions, renewals and recxaminations of the patent application or patent therefor listed above in part (a), to the full extent of the term or terms for which patents issue, and
- (c) in any and all inventions described in the patent application listed above in part (a), and in any and all forms of intellectual and industrial property protection derivable from such patent application, and that are derivable from any and all continuing applications, reissues, extensions, renewals, and examinations of such patent application, including, without limitation, patents, applications, unlify models, inventor's certificates, and designs together with the right to file applications therefor; and including the right to claim the same priority rights from any previously filed applications under the International Agreement for the Protection of Industrial Property, or any other international agreement, or the domestic laws of the country in which any such application is filed, as may be applicable;

all such rights, firle and interest to be held and enjoyed by the above-named Assignee, its successors, legal representatives and assigns to the same extent as all such rights, title and interest would have been held and enjoyed by the Assignor had this assignment and sale not been made

The undersigned further agrees that said Assignee may apply for and receive patent(s) for said invention(s) in its own name, and agrees to execute all papers necessary in connection with said application(s) and any continuing application(s) (continuation, divisional, or continuation-in-part), substitutes, renewals, reissues, reexaminations, extensions, and all other patent applications on all such invention(s), including all rightful oaths, declarations, powers of attorney and other papers, and agrees to execute separate assignments in connection with such application(s) as the Assignee may does necessary and expedient, and agrees to communicate to said Assignee, its successors, assigns, and representatives all facts known to the undersigned relating to said invention(s) and the history thereof: and agrees to cooperate fully and completely with said Assignee, its successors, assigns, and representatives in securing, maintaining, and enforcing proper patent protection for said invention(s) and for vesting title to said invention(s) and all patent applications and all patents on said invention(s) in Assignee, its successors, assigns and representatives

The undersigned agrees to execute all papers necessary in connection with any interference that may be declared or lingation that may be instituted concerning the application(s) or patent(s) referred to above and to cooperate fully and completely with the Assignee, its successors, assigns, and representatives in obtaining evidence and going forward with such interference or litigation, including providing testimonial evidence.

The undersigned hereby represents and warrants to Assignee, its successors, assigns and representatives that no assignment, grant, mortgage, beense or other right or agreement affecting the rights and property herein conveyed has been or will be made to others by the undersigned and that full right to convey the same as expressed herein is possessed by the undersigned

The undersigned hereby grants the power to the Practitioners at Customer Number 22195 as my attorney(s) or agent(s) with full power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

IN WITNESS WHEREOF, this Assignment is executed by the undersigned on the date opposite his signature

Inventor's Signatur

Timothy A Coleman Date: 11/1/01_

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I declare that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

VASCULAR ENDOTHELIAL GROWTH FACTOR-2

the specification of which vamended on	vas filed on August 3, (if applicable	2001 as Application Serial ()	No. 09/921,143 and wa
I hereby state that I have re- including the claims, as amo			-identified specification
I acknowledge the duty to application in accordance w	o disclose informationth Title 37, Code of F	n which is material to t ederal Regulations, Section	the examination of this is 1.56(a).
I hereby claim foreign priori application(s) for patent or i which designated at least on identified below any foreign application having a filing d Foreign Application(s).	niventor's certificate, or le country other than the application for patent	r § 365(a) of any PCT inter he United States listed below or inventor's certificate, or	national application, w, and have also PCT international
(Number) (C	ountry)	(Day/Month/Year Filed)	Priority Claimed Yes No
I hereby claim the benefit a provisional application(s) has	inder Title 35, United tied below:	States Code, Section 119(e) of any United States
60/223,276 (Provisional App. Serial No	August (Filing I		
I hereby claim the benefit application(s) or under § 36, listed below and, insofar as the prior United States applicates Code, Section 112, I a 37, Code of Federal Regulat application and the national of	5(b) of any PCT internals to subject matter of each plication in the manner technowledge the duty toons, Section 1.56(a) we	national application design ch of the claims of this app provided by the first parag to disclose material informa- which occurred between the	ating the United States, plication is not disclosed graph of Title 35, United ation as defined in Title of the prior
(Application Serial No.)	(Filing Date)	(Status: pat abandoned)	ented, pending,

Thereby appoint the Practitioners at Customer Number 22195 as my attorney(s) or agent(s) with full power of substitution, association, and revocation to prosecute the application identified above, including any continuation or divisional applications, and to transact all business in the U.S. Patent and Trademark Office connected therewith. Direct all correspondence to the above-mentioned Customer Number, namely 22195

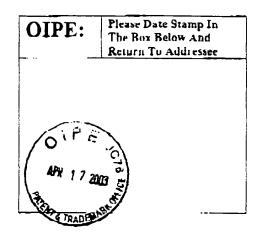
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are behaved to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor:	Timothy A. COLEMAN	
Inventor's signature: Residence: 7512 Boxberry Terr Post Office Address: same as above	ace, Salthersburg, MD 20879	Date: ////O/ Citizenship: US

Exhibit C

RETURN RECEIPT CARD

(MPEP § 503)



Application of:

Timothy A. Coleman

Filed: August 3, 2001

Application Serial No.: 09/921,143-Conf. #6449

Title: Vascular Endothelial Growth Factor 2

Docket No.: PF112P6

Art Unit: 1653

Examiner: Not Yet Assigned

The following documents were filed by Human Genome Sciences, Inc. via hand delivery on April 17, 2003:

1. Return Receipt Postcard;

2. Communication,

3. Preliminary Amendment;

4. Submission of Replacement/Substitute Drawings;

5. Substitute Drawings (68 Sheets, Figs. 1A-3111).

MMW/MJP/AKR/lcc Attn: Legal Dept.

Docket No: PF112P6 (PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Timothy A. Coleman

Application No.: 09/921,143

Group Art Unit: 1653

Filed: August 3, 2001

Examiner: Not Yet Assigned

For: Vascular Endothelial Growth Factor 2

COMMUNICATION

Commissioner for Patents Washington, DC 20231

Approximately around April 1, 2003, Applicants' representative received a phone call from Roxanne Rawls at the United States Patent and Trademark Office (USPTO) requesting the submission of replacement drawings, as the margins of the current drawings were not in compliance with 37 C.F.R. § 1.84. Mrs. Rawls referred to the September 27, 2001, "Notice to File Missing Parts of Noniprovisional Application," which indicated that the submitted drawing sheets did not have the appropriate margins in compliance with 37 C.F.R. § 1.84. Inadvertently, no corrected drawings were filed with the response to the formalities letter. Therefore, submitted concurrently herewith is a Submission of Substitute/Replacement Drawings in compliance with 37 C.F.R. § 1.84.

No fee is believed due for this submission. In the event that a fee is required in connection with this submission, please charge the required fee to Deposit Account No. 08-3425.

Respectfully submitted,

Dated: April 17, 2003

Melissa J. Pytel

Registration No. 41,512

HUMAN GENOME SCIENCES, INC.

9410 Key West Avenue Rockville, Maryland 20850

(301) 610-5764

Attorney for Applicants

Docket No.: PF112P6

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Timothy A. Coleman

Application No.: 09/921,143

Group Art Unit: 1653

Filed: August 3, 2001

Examiner: Not Yet Assigned

For: Vascular Endothelial Growth Factor 2

PRELIMINARY AMENDMENT

Commissioner for Patents Washington, DC 20231

Dear Sir:

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows. Applicants submit herewith: (a) Communication; (b) Submission of Replacement/Substitute Drawings; and (c) 68 sheets of drawings containing Figures 1A-31U.

Application No. 09/921,143

Docket No.: PF112P6

Please amend the specification as follows.

In the specification:

Please replace the paragraph beginning on page 7, line 23 with the following rewritten paragraph:

> Figure 31 A GFigure 31A-U shows the nucleotide sequence of the pVGI.1 vector construct containing the VEGF-2 insen (SEQ ID NO:36).

Docket No: PF112P6

Application No.: 09/921,143

Remarks

The specification was amended to replace language reciting, "Figure 31A-G" with

language reciting, "Figure 31A-U." This amendment is requested upon approval of the

Submission of Formal Drawings, submitted concurrently herewith. Applicants submit that the

amendment does not introduce new matter under 35 U.S.C. § 132. Therefore, entry of the

amendments is respectfully requested.

Conclusion

No fee is believed due for this submission. In the event that a fee is required in connection with this submission, please charge the required fee to Deposit Account No. 08-

3425.

Respectfully submitted,

Dated: April 17, 2003

Melissa J. Pytel

Registration No. 41,512

HUMAN GENOME SCIENCES, INC. 9410 Key West Avenue

Rockville, Maryland 20850

(301) 610-5764

Attorney for Applicants

3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Docket No.: PF112P6

Timothy A. Coleman

Application No.: 09/921,143

Group Art Unit: 1653

Filed: August 3, 2001

Examiner: Not Yet Assigned

For: Vascular Endothelial Growth Factor 2

SUBMISSION OF REPLACEMENT/SUBSTITUTE DRAWINGS

Atta: Draftsperson Commissioner for Patents Washington, DC 20231

Sir:

Applicants submit herewith replacement/substitute Figures 1A-31U (68 sheets) to replace Figures 1A-31G (47 sheets) as originally filed. Additional pages are due to reorganization of the drawings in order to comply with the margin requirements under 37 C.F.R. § 1.84. No new matter is introduced.

No fee is believed due for this submission. In the event that a fee is required in connection with this submission, please charge the required fee to Deposit Account No. 08-3425.

Respectfully submitted,

Dated: April 17, 2003

Melissa J. Pytel

Registration No. 41,512

HUMAN GENOME SCIENCES, INC.

9410 Key West Avenue

Rockville, Maryland 20850

(301) 610-5764

Attorney for Applicants

60	120	180	246	300	360	H FIG. 18
GTCCTTCCACCATGGACTCGCGGGCTTCTTCTCTGGGCGTGGTGTCTCTGTGCCTCCT	CGCTGCTCCCCGGGTCCTCGCGAGGCGCCCCCCCCCCCC	ACCTCTCGGACCCGGAGCCCGAGGCGAGGCCACGGCTTNTGCAAGCAAAGATCTGG	AGGAGCAGTTACGGTCTGTGTCCAGTGTAGATGAACTCATGACTGTACTCTACCCAGAACTCAGAGCTCATGACTCTACCCAGAACTCACTGTACTCTACTTACT	ATTGGAAAAFGTACAAGTGTCAGCTAAGGAAAAGGAGGCTGGCAACATAACAGAGAAAAGGG 	CCAACCTCAACTCAAGGACAGAAGTTATAAAATTTGCTGCAGCACATTATAATACAG 	FIG. 1A MATH FIG. 1B
1	61	121	161	241	303	

MATCH WITH FIG. 1A

	agatic tegaaaagtattgataatgagtggagaaagactcaatgcatgc	007
36.	TCTAGAACTTTCATAACTATTACTCACCTCTTTCTGAGTTACGTACG	5 0
	CTATAGATGTGGGGAAGGAGTTTGGAGTCGCGACAAGACACCTTCTTAAACTCTCCATGTG	430
421	CATATCTACACCTCAAACCTCAGCGCTGTTTTTTTGGAAGAAATTTGGAGGTACAC)) r
	TGTCCGTCTACASATGTGGGGGGTTGCTGCAATAGTGAGGGGGGTGCAGTGCAGTGCATGAACACA	540
4 B J	ACAGGCAGATGTTATCACTACCCCGACGTTATCACTCCCCGACGTTCACTTGTCGT S V Y R C G G C C N S E G L Q C N N T S	
, ,	GCACCACCTACCTCASCAAGACGTTATTTGAAATTACAGTGCCTTTTCTCTCAAGGCCCCCA	009
541	CGTGCTCCATGCAGTCSTTCTGCAACTTTAATGTCACGGGGGAGAGAGTCCCGGGGT	
,	AACCAGTARCAATCAGTTTTGCCAATCACACTTCCTGCCGATGCATGTTAAACTGGATG	999
109	TTGGTCATTGTCAAAAGBGTTAGTGAAGGACGGCTACGTACAGATTTGACCTAC	

FIG. 1E

MATCH WITH FIG. 1C

MATCH WITH FIG. 1B

cagrerc 720 720 STCACAG	NGANGCC + 780 NCTACGG R C L	36AFTCC 	TGCAGAG + 900 ACGTCTC C R A	FCCCAGT + 960 ACGTCA
TTTACAGACAAGTTCATTCCATTATTAGACGTTCCCTGCCAGCAACTTACTAGTGTGTC	AGGCAGCGAACAAGACCTGCCCCACCAATTACATGTGGGAATAATCACATCTGCAGATGCC	TUGCTCAGGARGATTTTTATGTTTTCCTCOGATGCTGGAGATGACTCAACAGATGGATTCCTAGATGCATTCCTAGATGCATTCCTACAGATGGATTCCTACAGATGCATTCCTACAGATTCCTACTAAGGATCCTACGAGTCCTTCTAAGAGAGTTCTAAGGATCCTAAGGAGTCCTAAGGAGTTCTAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGTTAAAGAGAGAGAGAGAGAGAAAAAA	ATGACATCTGISGACCAAACAAGGAGCTGGAIGAAGAGAGCCTGTCAGTGTGTGTGTGCAGAGAGAGAGAGA	CGGGGCTTCGGCCTGCCAGCTGGACCCCAAAGAACTAGAGAACTCATGCCAGT+++
663	72:	781	841	1.06

F1G. 10

	GTGTCTGTAAAAACAAACTCTTCCCCCAGCCAATGTGGGGGCCAACCGAGAATTTGATGAAA	0.500
961	CACAGACATTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	
	ACACAYGCCAGTGTGTAAAAAAACCTGCCCAGAAATCAACCCCTAAATCCTGGAAA	1080
1021	TGTGTACGGTCACACATTTTGCACGGGGGGGGGGGGGGG	
,	AATGTGCCTGTGAATGTACAGAAAGTCCACAGAAATGCTTGTTAAAAGGAAACAAGTTCC	1190
1031	THE CACGGACACTTACAGGTGTCTTTACGAACAATTTTCCTTTCAAGG	
	ACCACCAAACATGCAGCTGTTACAGACGGCCATGTACGAACCGCCAGAAGGCTTGTGAGGC	1200
1141	FGGFGGTTTGTACGTSACAATGTCFGCCGGTACATGCTTGGSGGTCTTCCGAACACTCG	
	CAGGATTTTC PTATAGT3AAGTGTGTGTCCTTGTGTCCCTTCATATTGGCAAAGACCAC	1260
1201	GTCCTAAAAGTATATCACTTCTTCACACACAACACAGGGAAGTATAACCGTTTTCTGGTG	

FIG. 1D

MATCH WITH FIG. 1E

MATCH WITH FIG. 1D

	AAATGAGCTAAGATTGTACTSTTTTCCAGTTCATCGATTTTCTATTATGGAAAACTGTGT	1320
1261	TTTACTCGATTCTAACATGACAAAGGTCAAGTAGCTAAAAGATAATACTTTTGACACA	
:321	PSECACAGTAGAACTGTGTGAACAGAGACCCTTGTGGGTCCATGCTAACAAGACA 	1380
1381	AAAGTCTGTCTTCCTGAACCATGTGGATAACTTTACAGAAATGGAACTGGAGCTCATGTG 	1440
1441	CAAAAGGCCTCTTGTAAAGACTGGTTTTCTGCCAATBACCAAACAGCCAAGATTTCCTC	1500
1501	TTGTCATTTCTTTAAAAGAAFGACTATATAATTATTATTTCCACTAAAATATTGTTTCTGC 	1560
1561	ATTCATTTATAGCAACAATTGGTAAAACTCACTGTGATCAATATTTTTTTT	1620
1621	GCAAAATATGTTTAAAATPAAAFGAAAAPTGGATTRATAAAAAAAAAAAAAAA 	1670

FIG. 1E

	CGAGGCCACGGCTTATGCAAGCAAAGATCTGGAGCAGCAGTTACGGTCTGTGTCCAGTGT	эссяс	-	тт. 	CACGGCTTATGCAAGCAAAGATCTGGAGCAGCAGTTACGGTCTGTGTCCAGTGT	4.4G	CAA)	AGA:	PCTC + + +	GAG 	G A G	CAG	ATT.	000	13 C	7647€ -+	3TCC	, , , C ,	161 -
61	AGATGAACTCATGACTGTACTCTACCCAGAATATTGGAAAATGTACAAGTGTCAGCTAAG	SAACT	· 'CAT	GAC	TCT	A.C.T.	CT-A(7333	NGAZ	ነፕዶብ	TGG		ATG	TAC	7A4C	Fer	K.AC	ic T7	7,4G
	1 1 1	M T V L Y P E Y W, K K Y K C Q L R	=	<u> </u>	>	V L Y	<u> </u>	ຸດ,	<u></u>	· >	EYWKKYKCOD	<u> </u>	<u> </u>	· >	<u>'</u> ×	: :	i o	۲ ،	<u>;</u> ⊭
121	GASAGGCTGCCAACATAACAGAGAACAGGCCAACCTCAACTCAAGGACAGAGAC	SGAGC	· CTG	£35	ACA	TA.	CAG	46.75	, ,CAC	2000)AAC	·CTC) d. d.	205	₩	3.A.C.	4G 75	, sGAG	3AC
	×	X G G W Q H N R E Q A N L N S R T E E T	*	0	H O M	+ 2	NREQANLNERG	· 田	įα		2		Z	נט	<u> ~</u>	<u>.</u>	i ⊞1	E	ŀ ! E —
181	ATA	NATAAAATTGCTGCAGCACATTATAATACAGAGATCCTGAAAATTGGTAAATGAGTG	היהפכ	37CC	, rec	ACA	TTA	ГАЧ	rac)	भुट्टभ(3ATV	ر کارا	141.1		PAT	JGA.	ra a	PGA	31'G
	: H	X F A A A Y N T Z I L K S I D N E W	; . «		FARRNGISILKSIDNE	- エ	ļ >-	. 2	<u>-</u>	(F)	, , , , , , , , , , , , , , , , , , , ,		ا ا ا	် လ	. H	<u> </u>	Z	ET)	3
27.1	GAGA	Gagaaagactcaatgccatgccacgggagststatatagatgtggggaaggttttsgagt	· STC	¥¥.℃	CAT	GCC	ACG	CGA	30.0	3TG	гאт	AGA	rg TV	9999	32.70	• 56 AC	31PF	1363	AGY
	· ~	R K T Q C M P R E V C I D V G K E F 3 V	0	: ນ	. E	· •	1 1 🔀	<u>்</u> ப	>		<u> </u>	Α .	>	ဌ	* :	<u>ш</u>	DZ.	מז	· >
30)	9090	CGCGACAAGACACCTTTTAAACCTTCTTTTTTTTTTTTT	4CA(CT	برنا	ችለፒ	hCC.	TCC	ATG.	PST	3TC()G1'(, YTÆ	:AG	4.T.C.	JGG.	Š	TT3	CTG.
	1 4	A T N T F F K P F C V S V Y R C G G C C	<u>.</u>	· 1	TFFRPCVSVYRCG	; ; ;	1 A		ر ا	; -	ا د		· }	<u>.</u> ×	်	9	9	. 0	; ()

-1G. 2A

MATCH WITH FIG. 2B

2A
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CACTCCTGCCGATGCATGTCTAAACTGGATGTTTACAGACAAGTTCAATTATTAGAGTTTCAATTATTAGAGTTTCAATTATTAGAGTTTCAATTATTAGAGTTTCAATTATTAGAGTTTCAATTATTAGAGTTTCAATTATTAGAGTTTCAATTATTAGAGTTTTAGAGTTTCAATTATTAGAGTTTTAGAGTTTCAATTATTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGTTTAGAGGTTAGA	9 1	R S L P A T L P Q C Q A A N K T C P T N THACATIGHGGAATAAFCACATTCTCCTC	Y M N N N I C R C L A Q E D F M F S S	CGATGCTCSAGATGACTCAACAGATCCATGACATCTGTGTGGACCAAACAAGGAGCT	GPNKEL	GGATCAAGAGACCTSTCAGTGTGTCTGCAGAGAGGCTTSSGCTGCGAGCTGTGGACC
E P V T CGTTTKCKGRCAZ V Y R Q	STCAGGCAGCGAAG	O A A N SCCTGGCTCAGGA	ਬ ੇ ਖ਼ਾਹ	rccatgacaterg	вртс	CAGCGGGCFFCO
GCCGATGCATGTCTAAACTGGATGTTTACAGACAAGTTTCATTTACAGACAAGTTTCATTTACAGACAAGTTTCATTTACAGACAAGTTTCATTTACAGACAAGTTTCATTTACAGACAAGTTTCAATTACA	Carcactaccacaging	PATEL POCO PANNER TOPPT	NNBJCRCLAQEDFNF	ACTCAACAGATGGATT	DOS DOFFIDICOPNKE	GGATCAAGAGACCTSTCAGTGTCTGCACACCGGGGCFTCGGCCTGCCAG
CACTCCTGCCGATC	DGTYYCCCYGCCAGG	R S L P A	N N N N N	CGATGCTGSAGATG	F A G D D	GGRTCAAGAGACCT

FIG. 2B

ACAGAANCGCTTGTTAPAAGGAAASAAGTTCCACCACCACAACPTGCAGCTGTTAGAGACGCGGGGGGGGGG	GCTTGTTAPAAGGAAASAAGTTCCACCACCAAACATGCAGCTGTTACAGA L L R G K F H H Q T C S C Y 3 CGAACCGCCAGAGGCTTGTGAGCCAGGATTCTCATATACTGAAGAAGTG N R Q K A C E P G F S Y S E E V TCCCTTCATATGCCAAAGACCACAAATGAGATTCTACTGTTTTCC P S Y W Q R P Q M S '	ACAGNANCIGUTGTTRAPANGGANASANGTTCCACCACCACCTGCAGCTGTTNGTNGTAGAGGACG O K C L L K G K K F H H Q T C S C Y R R GCCATGTNGTACGAACCGCCAGAAGGCTTGTTAGTGTAGTG																
ACAGAAACGCTTGTTAAAAGGAAASAAGTTCCACCCAAACATTGCAGCTGTTTACAGAACG Q K C L L K G K K F H H Q T C S C Y R R GCCATGTACGAACCGCCAGAGGCTTGTSAGCCAGGATTCTCATATAGTGAAGAAGTGTG P C T N R Q K A C E P G P S Y S B E V C TCGTTGTSTCCCTTCACATTGCCAAAATGAGCTAAAATGATTGTACTGTTTTCCA	GCTTGTTAPAAGGAAASAAGTTCCACCACCAACATGCAGCTGTTACAGA L L K G K K F H H Q T C S C Y 3 CGAACCGCCAGAGGCTTGTSAGCCAGGATTCTCATATAGTGAAGAASTG N R Q K A C E P G P S Y S B E V TCCCTTCATATGCCAAAGACCACAAATGAGTTTTCT TCCCTTCATATGCCAAAGACCACAAATGAGATTCTTATACTGTTTTTCT TCCCTTCATATGCCAAAGACCACAAATGAGATTCTTACTTA	GCTTGTTAPAAGGAAASAAGTTCCACCACCAACATGCAGCTGTTACAGA L L K G K K F H H Q T C S C Y 3 CGAACCGCCAGAAGGCTTGTSAGCCAGGATTCTCATATAGTGAAGAAGTG		•					•			•					,	•
GCCAMGTACGAACCGCCAGAAGGCTMGTSAGCCAGGATTCTCATATACTGAAGAAGTGTG p C T N R Q K A C E P G P S Y S E V C TCGTTGTGTGTCTTCATATCGCAAAGAAGGCCACAAATGAGCTAAGATTGTACTGCTTTTCCA	L L R G K K F H H Q T C S C Y 3 CGAACCGCCAGAGGCTTGTGAGCCAGGATTCTCATATACTGAAGAAGTG N R Q K A C E P G F S Y S E E V TYCCTTCATATGCCAAAGACCACAAATGAGATTCTACTGTTTTTC P S Y W Q R P Q M S '	L L R G K K F H H Q T C S C Y 3 CGAACCGCCAGAGGCTTGTGAGCCAGGATTCTCATATACTGAAGAAGTG N R Q K A C E P G F S Y S E E V TYCCTTCATATGCCAAAGACCACAAATGAGATTCTACTGTTTTCC P S Y W Q R P Q M S '	ACAGAAA	СССТРСТ	ded.	CGA	AAG	A4G	TTC.	CAC	CAC	ርክሌ	ACP.	TGC	\ \frac{\frac{1}{2}}{2}		7,9C	36 AC
GCCATGTACGAACCGCCAGAAGGCTTGTGAGCCAGGATTTTCATAGTGAAGTGTG	CGAACCGCCAGAGCTTGTGAGCCAGGATTCTCATATAGTGAAGAAGTG	CGAACCGCCAGAGCTTGTGAGCCAGGATTCTCATATAGTGAAGAGTGTGAACCAGGATTCTCATATAGTGAAGAGTGTTTGTAGTAGATTCTCATATACTGTTTTCTTCTTTTTCTTTTTTTT) S	T T D	X	5	<u> </u>	i i ⊻	· - <u>-</u>		#	,	, E	را	S	- ນ	>	~ ~
GCCATGTACGAACCCAGGAGGCTTGTSAGCCAGGATTTTCATACTGAAGAAGTGTG P C T N R Q K A C E P G P S Y S E V C TCGTTGTGTGTCCTTCATATGGCAAAGACACACAAATGAGCTAAGATTGTACTGTTTTCCA	CGAACCGCCAGAAGGCTTGTGAGCCAGGATTGTCATACTGAAGAAGTG N R Q K A C E P G P S Y S E E V TCCCTTCACATTGGCAAAGCCACAAAGTGAGCTAAGATTGTACTGTTTTTC P S Y W Q R P Q M S '	CGAACCGCCAGAAGGCTTGTGAGCCAGGATTGTCATATACTGAAGAAGTG N R Q K A C E P G P S Y S E E V TOCCTTCATATGCCAAAGCCACAAATGAGATTCTACTACTTTTTCT P S Y W Q R P Q M S '		•					•			•						
P C T N R Q K A C E P G P S Y S E V C TCGTTGTSTECCTTCAPATTGCCACAAATGAGCTAAGATTGTACTGTTTTCCA	N R Q K A C E P G P S Y S E V TOUCHTCATATTGCAAAGACCACAAAATGAAGATTGTACTGTTTTC P S Y W Q R P Q M S '	N R Q K A C E P G P S Y S E V TOUCOMPCADATTGGGAAAGAGCACACAAAATTGTACTGTTTTTC P S Y W Q R P Q M S	GCCATG	PACGAACCC	CCAG	3.P.F.G	SGCT	ng.	SAG	CCA	GGA	ئاط	FCA	TAT	A.C.T.	GAA.	GAA.	3767
	TCGTTGTSTCCCTTCACATTGCCAAAGACCCACAAATGAGCTAAGATTGTACTGTTTTCT R C V P S Y W Q R P Q M S '	TCGTTGTSTCCCTTCACATTGCCAAAGACCACAAATGAGCTAAGATTGTACTGTTTTCTCTTTTTCTCTTTTTTCTCTTTTTTCTCTTTTTT		9 14 R	0	+ =	¥	 C	· ·	- d	9	1 1 <u>C</u>	S	· >	l ! ! (2)	ļ. P	E)	
108] TCGTTGTSTECTTCAPATTCGCAAAGACCACAAATGAGATTGTACTGTTTTCA	TCGTTGTSTCCCTTCACATTGCCAAAGACCACAAATGAGCTAAGATTGTACTGTTTTCT 	TCGTTGTSTCCCTTCACATTGGCAAAGACCACAAATGAGCTAAGATTGTACTGTTTTCTTCTTCTTTTTCTTCTTTTTTTT		•					•			•						
	PSYMQRPQMS,	PSYWORPONE	TCGTTG	PSOCCEPP(ACAS	rTGG	CAA	AGA.	CCA	CAA	A 176	ગુકુણ	TÀÀ	GAT	764	ACT	GT.1	PYCE

MATCH WITH FIG. 2B

MATCH WITH FIG. 2C

Trstattaaaaaaaaaaaaa	1501
ALABACTCACTGRATCARTATTTTTATTATTTGAAATTATTTAAAATTAAAAAAAA	1991
TAATYYATYTCCACTAAAATATYGYTYCTGCATTCATTYTTATATAGCAACAACAACTGGT	1381
CFGCCAATGACCAAACAGGCAAGATTTTCCTTGTCATTTCTTTAAAAGAATGACTATA	1321
Tractitacagaaansgactggagctcatctgcaaaagggcctcttgtaagactggttt	1251
GAGACCCTTGTSGGTCCATGCTAACAAAAAGTCTTGTCTT	201
GTTCATCGATTTTCTATGGAAACTGTGTGTGCACAGTAGAACTGTCTGT	[b · ·

FIG. 2D

2	SIRDLORLE Sfddlorlh	L HITAKWSOA L RKCCWOFIN	yo;	S. TIAL PAMI		150	NISSVICTORS		Veg 12 TOCAPREVCT DVGKETOVAT NTFFKPPC VSVYRCGCCC NSECTORANT	151 PALTO PVIHIRSVKVA KVEYVRKPIK LKEVOVRESE HLEDAÖL AT	ETVAAARPYT	DRARQE KKSV	DVYRQVH511
	Peglo MRYLACLLL ESCOYLANVL ACEAETPREV TERLARSOLH STRDLORLLE Pools MNRCWA LEL SLOCYLRLVS AEGDPTPEEL YENLSDASTR SFDDLORLLH	Veg! MMFLL SWIMSLALL LY LHHAKWSOA		Pegfa IDSVGSEDSL DISLRAHRVH AYKHVPEKRP LPIRIKRSILLAVP Pdafb GDP,GCEDGA ELDLAMIRSH SGGELÉSLANGRRSLÖ SUTTAEPAMI	Vegl APMAL CCCCO NHHIVVKIND VYOR		VE VKRC TGCC	VE VQRCSGCC	VSVYRCCCCC	III. CONG.	HLACKO!	HANCH ONFIXE	H SOCUSKI
	ACEAE IPREV AEGDPIPEEI			ATKHVPEKRP SCCELES	WHAT VVATURE		SANT LINGS	Oct MY I YA	NTFFKPPC	LKEVOVRESE	FKKAIVILED	DITICEMSFLO	PKPV1 SF AN
	LGCGYLAHVL SLCCYLRLVS	SIVVINIST ALL		DIS_RAHCVH ELDLWMTRSH	CCS IKFAANH		E IPRSOVOPT	E ISRR. IDRI	DVCKEFCVAT	KVÍ YVIRKPK	K I E I VRKKP	RIK PH. C	ETT, VPL SOC
	MARYLACLLI MARCWALL	אנוא ני	15	DSVGSEDSL GDP. GCEDGA	APIMAE DEPARTMENT	TOT	AVEKTRIVIY	AE KIRIEVI	TOCHPREVE	151 RVHHRSVKVA	CVQL RPVQVR	CESVITACIA	STSYLSK'TF
	Pegto Poetb	Vegt	veyik	Pagla Pootb	Vegí	٨٠٠	Pdela	Pdyth	Veg 12	Pdulo	Pdolb	Vēgi	Vec 12

FIG. 3A

POGIO TSLINPO YREEDIBUR. POGIO TSLINPO YREEDIBUR. POGIO RSPGGSCEOR AKTPOTRVIT RIVRVRRPPK CKHRKEKHIH DKTALKETLG VOGI RCK. VOGI	Pegla Pegla CGP CCP CSC RRHLF VUDP Q1CKCSCKNT Vegl FHDICGPNKE LDE: 1COCVC RAGLRPASCG PHKFL DR NSCOCVCKNK	201 Pdg 1c Pdg 1t DGRCKARQ I LI NERI CRC DKFRR Veg 1 DSRCKARQ I LI NERI CRC DKFRR Veg 12 I FPSQCGANR (FDENICOC VCKRI CPRN) PLNIPCKCACE CI I SPQKCL I	Pdg10 Pdg1b Veg1 Veg1 KCKKFHHJIC SCYRRPCINR OKACEPGFSY SEFVCRCVPS YWJRJWS
RIVRVRRPP KSRYKSWSV NYAMNINI C	RAGURPASC	DKFRK VCKR I CPRN	OKACLPOFS
YREEDTDVR. AKTPOTRVTI .CKGOKERRK COAANKTCPT	LINE REGERE	I EI NERICRE EFDENICOC	SCYRRPCINR
20: Pdg1a ISLNPD YRLEDIBVR Pdg1b RSPGGSUEOR AKTPOTRVT Veg1 RGK Veg12 RRSLPATLPC CDAANKTCP	251 A CGP FIDICCPNKE	301 DSRCKARQ LFPSQCGANR	25.1 KCKKFHH2IC
Pdgla Pdglb Vegl	Pagla Fegib Vegi Vegi	Pdg fc Pdg ft Veg f Veg i?	Pdg n Pdg b Veg Veg 2

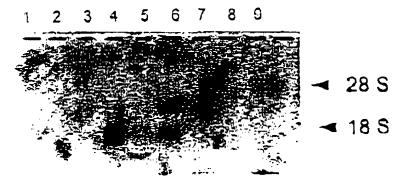
1G. 3B

PERCENTAGE (%) OF AMINO ACID IDENTITIES BETWEEN EACH PAIR OF GENES IS SHOWN IN THE FOLLOWING TABLE

	PDGFa	PDGFβ	VEGF	VEGF-2
PDGFα				
PDGFβ	48.0			
VEGF	20.7	22.7		
VEGF-2	23.5	22.4	30.0	

FIG. 4

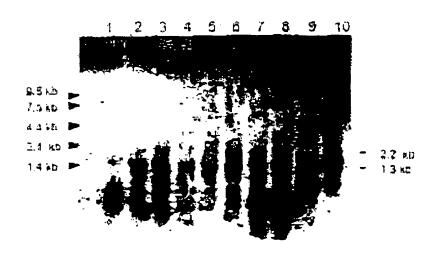
Expression of VEGF2 mRNA in Human Breast Tumor Cells



Lane 1. normal breast tissue
Lane 2. breast tumor tissue
Lane 3-9. breast tumor cell lines.

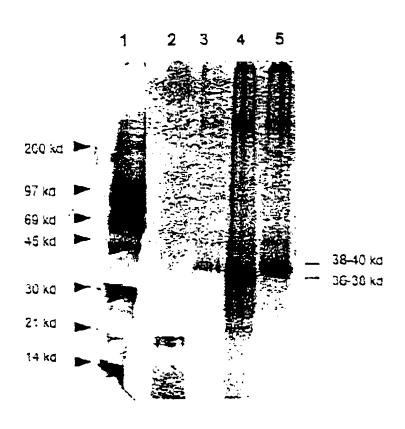
FIG. 5

Expression of VEGF-2 mRNA in Human Adult Tissues



- Ovary
 Testes
- 3. Gail Blader
- 4. Kidney
- 5. Liver
- 6. Lung
- 7 Spieen
- 8. Prostate
- 9 Hippocampus
- 10. Heart

FIG. 6



Lane 1: 14-C and rainbow M.W. marker

Lane 2: FGF control

Lane 3: VEGF2 (M13-reverse & forward primer)
Lane 4 VEGF2 (M13-reverse & VEGF-F4 primer)
Lane 5: VEGF2 (M13-reverse & VEGF-F5 primer)

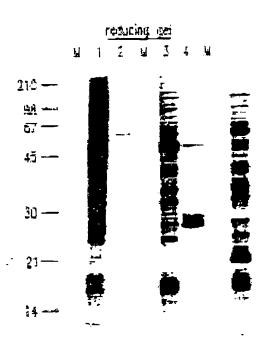
FIG. 7



Lane M: Marker

Lane 1: Vector medium Lane 2: VEGF2 medium

FIG. 8A

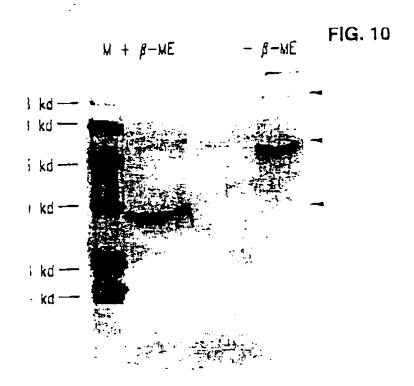


Lane M: Marker

Lane 1: vector cytoplasm Lane 2: vector medium Lane 3: VEGF2 cytoplasm Lane 4: VEGF2 medium

FIG. 9 2 Ţ 98 kd — 68 kd --- 43 kd -29 kd — 18 kd — 14 kd —

Lane 1: Molelular weight marker
Lane 2: Precipitates containing VEGF2.



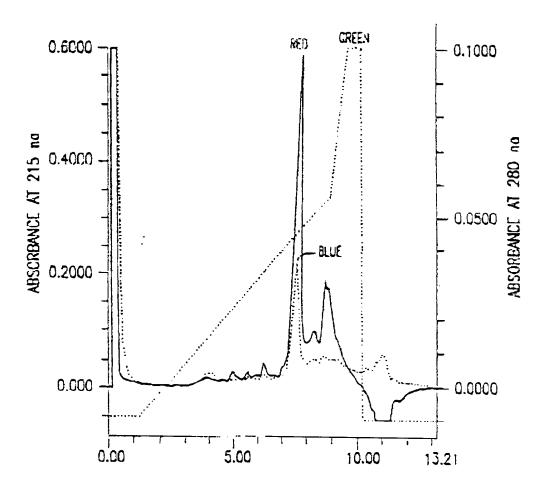


FIG. 11

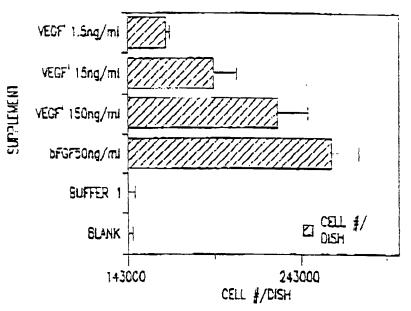


FIG. 12

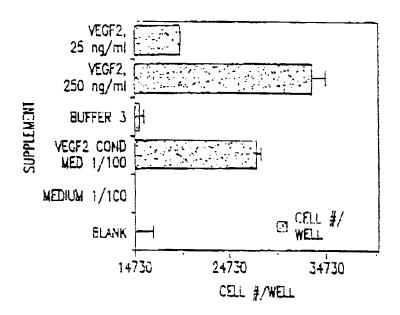


FIG. 13

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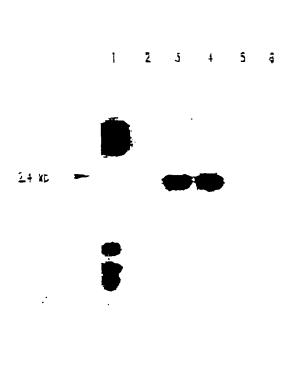


FIG. 14A

M 8 1 2 3 4 5 6 7 8 9 10 11 12 13



FIG. 14B



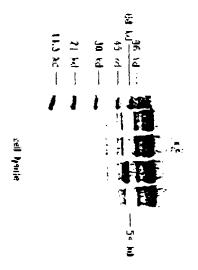
- 1.
- Mulecular weight marker Umbelical vein endothelial cells 2.
- Aortic smooth muscle cells 3.
- Dermal fibroblast

FIG. 15

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- 1. Molecular weight marker
- 2. Blank
- 3. Control protein HA
- 4. Vector control
- 5. VEGF2-HA

FIG. 16A



- 1. Molecular weight marker
- 2. Blank
- 3 Control protein-HA
- 4. VEGF2-HA
- 5. Vector control

FIG. 16B

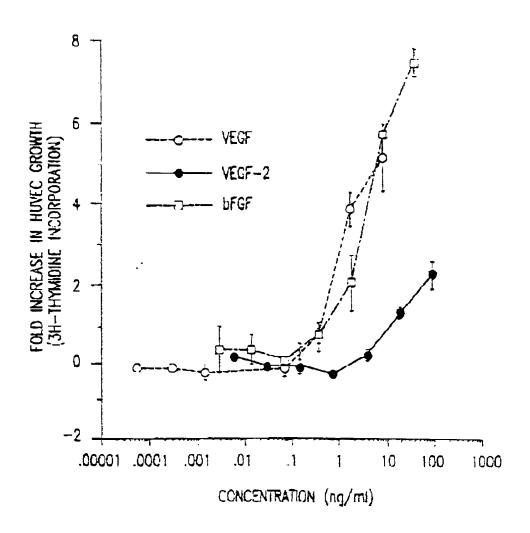


FIG. 17

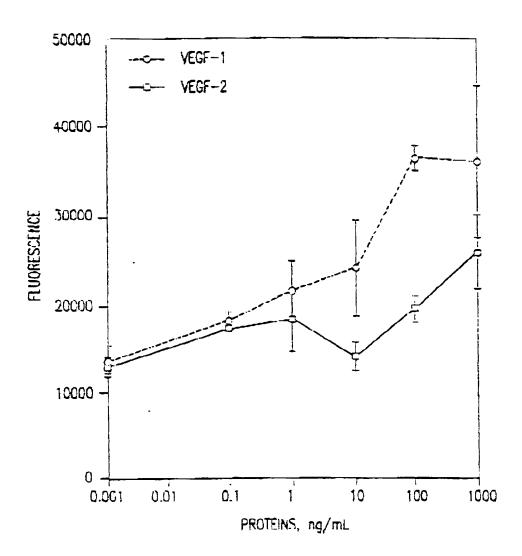


FIG. 18

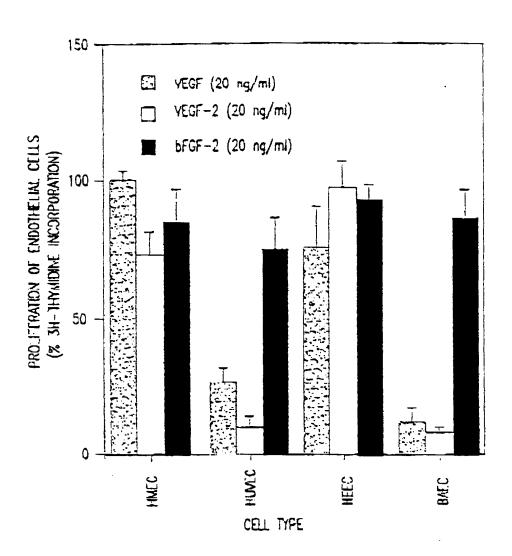


FIG. 19

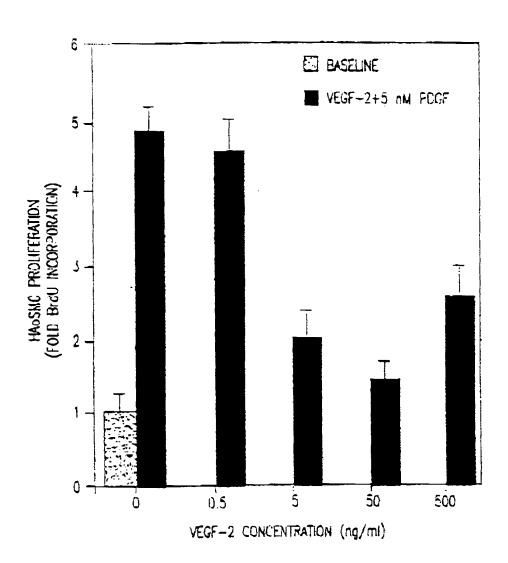


FIG. 20A

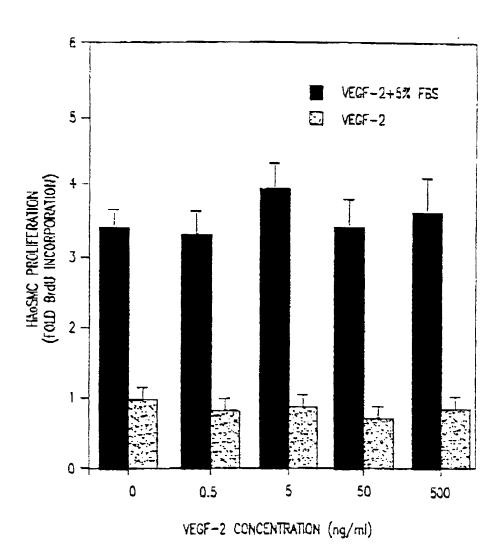


FIG. 20B

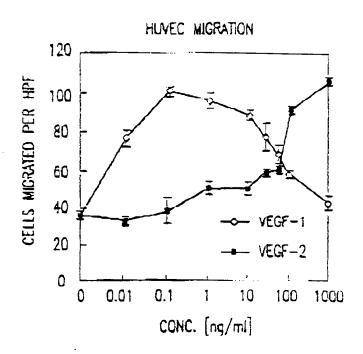


FIG. 21A

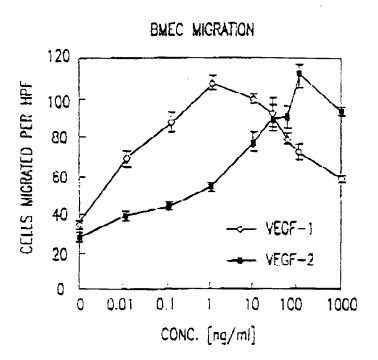


FIG. 21B

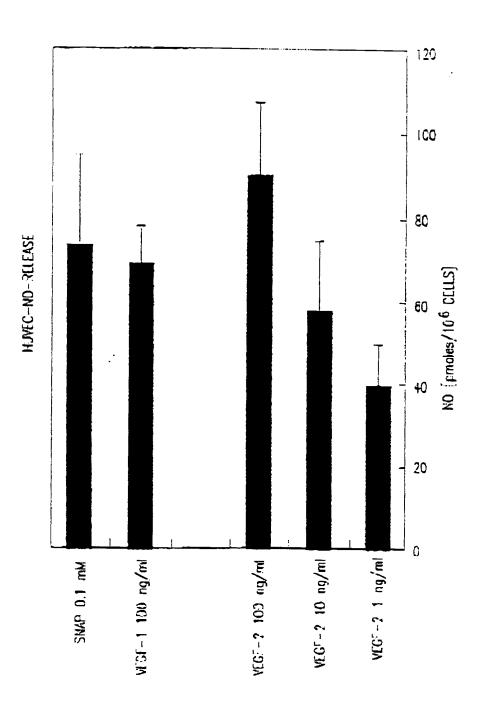
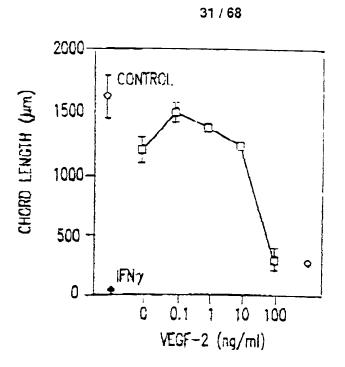


FIG. 22





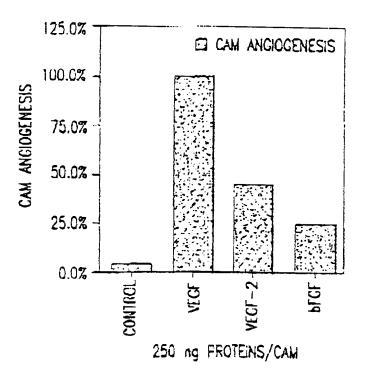
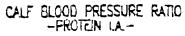


FIG. 24

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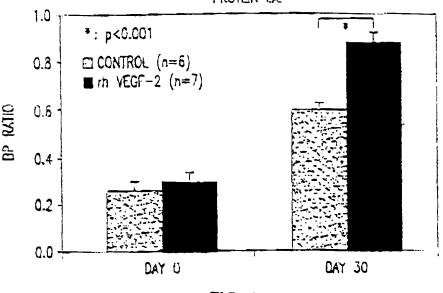


FIG. 25A

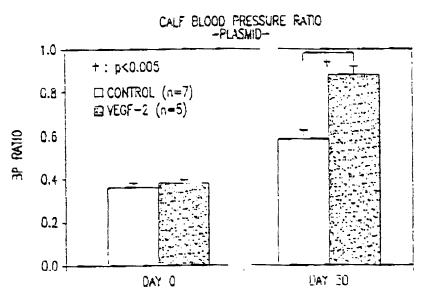
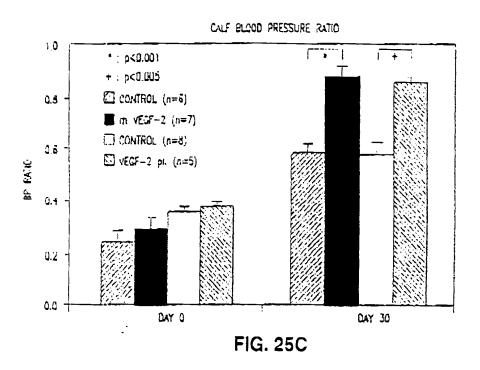
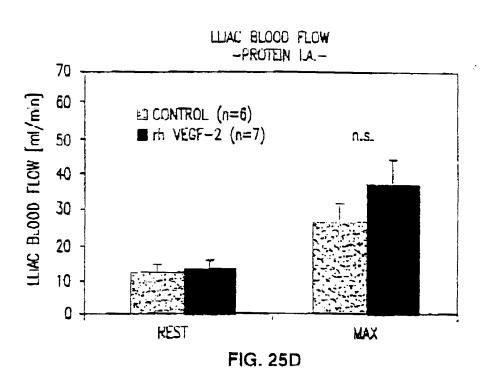


FIG. 25B





34 / 68

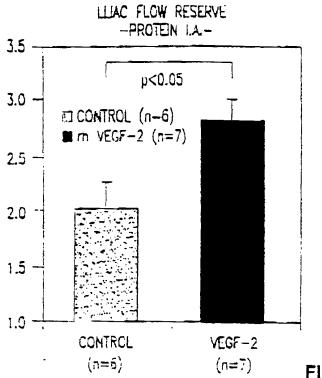


FIG. 25E

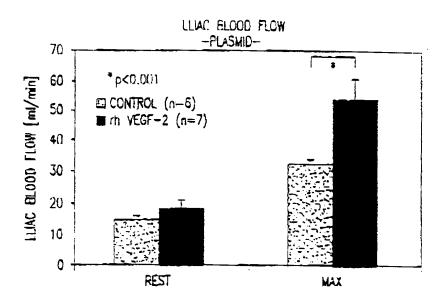


FIG. 25F

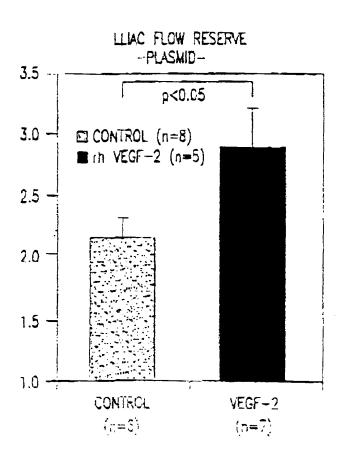


FIG. 25G

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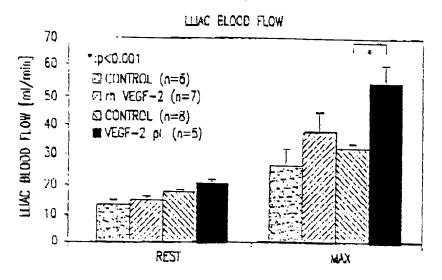


FIG. 25H

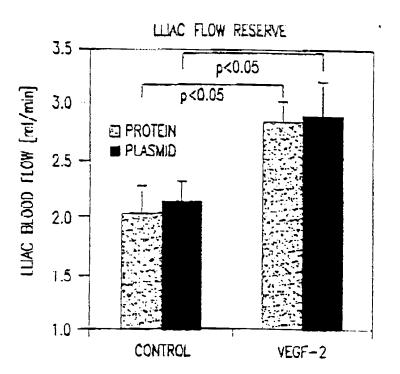


FIG. 251

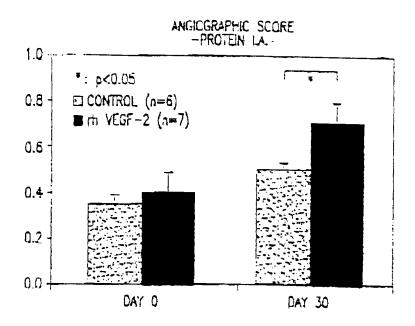


FIG. 25J

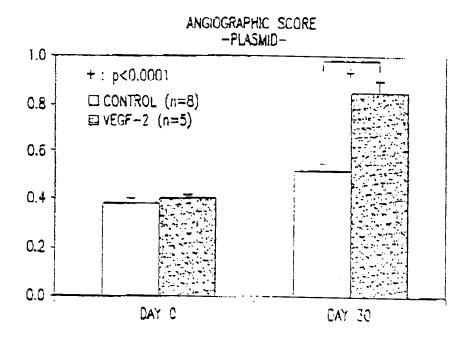


FIG. 25K

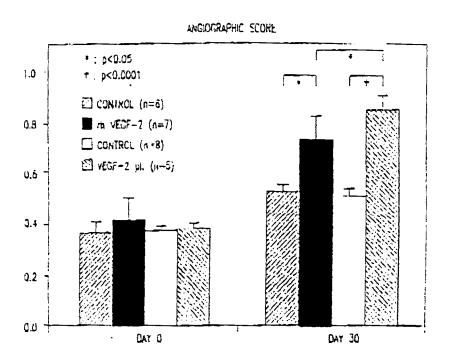


FIG. 25L

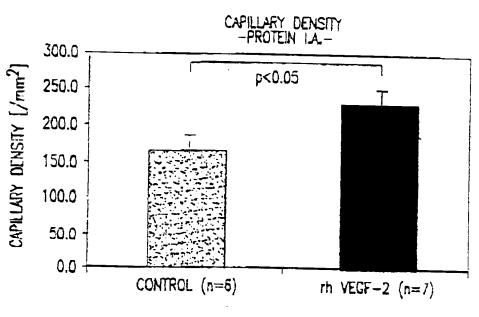
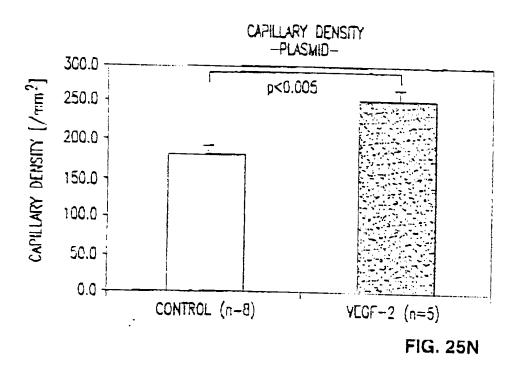
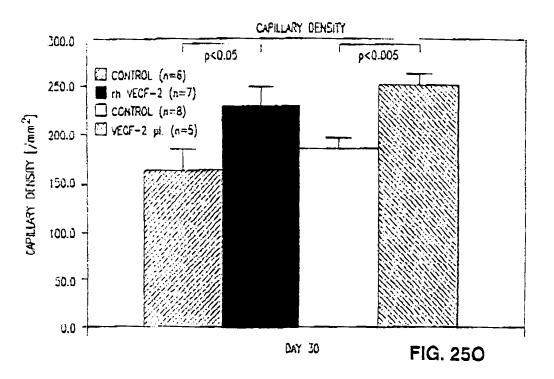
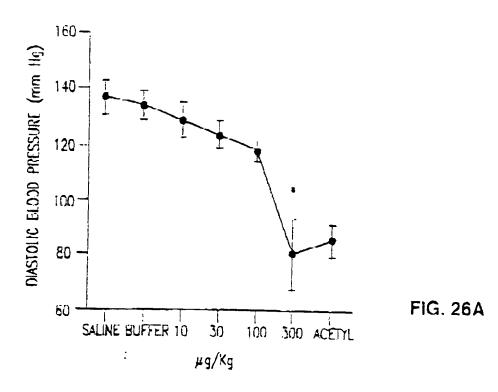


FIG. 25M







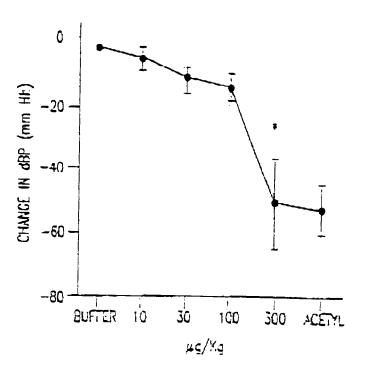


FIG. 26B

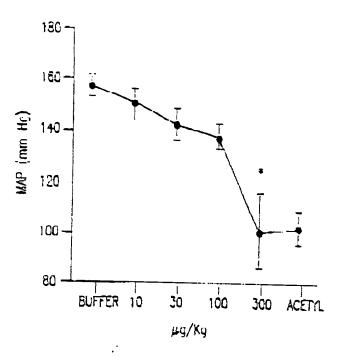


FIG. 26C

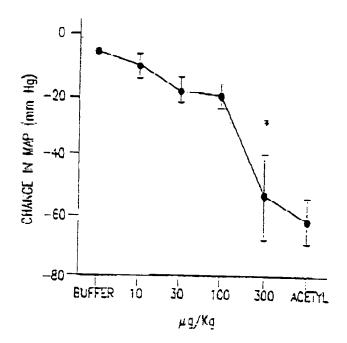
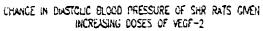
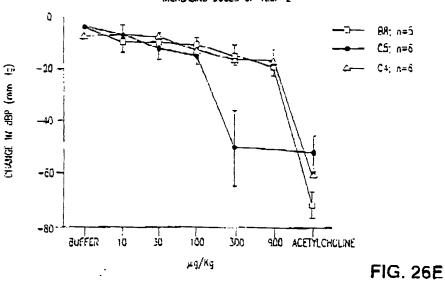
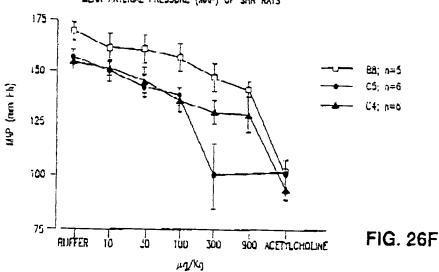


FIG. 26D





THE EFFECT OF INCREASING DOSES OF YEAR-2 ON THE MEAN ARTERIAL PRESSURE (MAP) OF SHR RATS



THE EFFECT OF VEGF-2 ON THE DIASTOLIC BLOCD PRESSURE OF SHR RATS

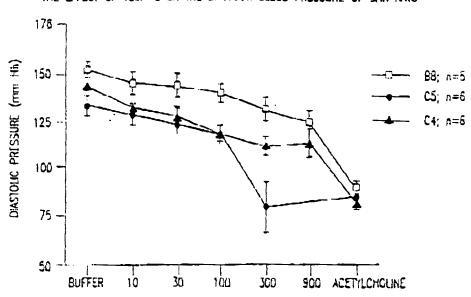


FIG. 26G

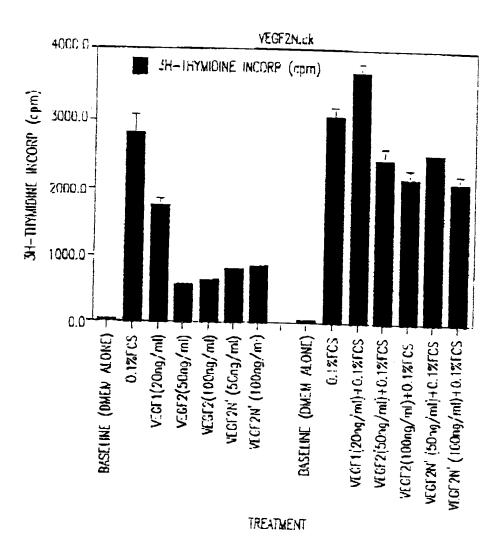


FIG. 27

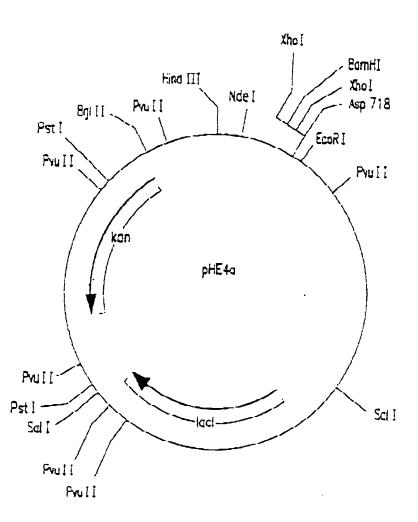


FIG. 28

1 TAAAAACTSCAAAAATAGI TTGACT (TGTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT	OPERATOR 2 A 1 6 1 A C C C A (A T 1 C 1 C A C C C C C A T A A C A A T) 1 1 C A C A C A 1 A A A A A C A A T) 1 1 C A C A C A 1 A A A A A C A A T) 1 A A A A C A A T A A A C A A T A A A A A	GAGAATTA CATATO	FIG. 29
IAAGCIIA	-10 50 1 A A G A 7 6	S/D M AGAGGAG	

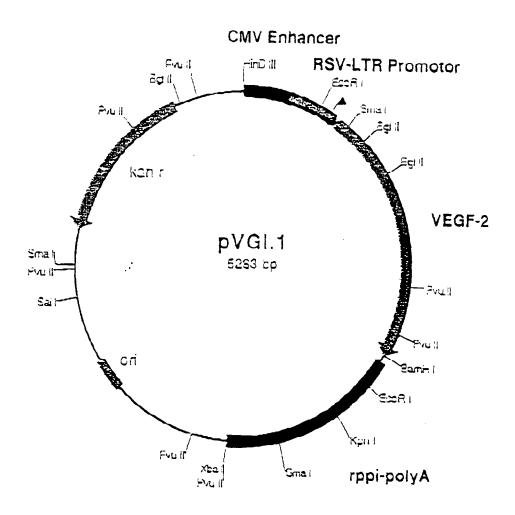


FIG. 30

FIG.31A

2 + W 1	991 + 100	525
HINIIII AAGCTTGACCTTATGCGACTTTCCTACTTGGCACTACATCTACGTATITAGTCATCGCTATATACCATGGTGATGCG AAGCTTGACCTTATGCGACTTTCCTACTTGGCACTACATCTACGTATAGGTCATCGCTATACGTGATGCATAGGTGATACGCTGAAGGATGACGTGATGCATAGGTGATAGGTGATAGGTAGG	GTI FIGECAG" ACALCAATGGGCGTGGTAGT GGT", GACTCACGGGGATTICCAAGTCITCACCCCACTGACGT CAAAAC.GTCATG" AGTIACCCGCACCTATCGGCAAGTGAGTGCCCTAAAGGITCAGAGGTGGGTGCCAA	CARTGGCACTITSTITEGCCACCAAAACGAGACTTTTCAAAA7GTCGTAACAATCCGCCCCATTGACGCAAACGAAAAAAAAA

FIG.31B

- CMV Enhancei	
CATCCCGATESSTGCCACFAGGTCCTATGATCGTGTATGTGTGTGTTGCTTAGGAAGSTAACAGAGGGGTCT 	- ~
R\$V-1 TR Piomple:	
AACACGGATTGGACGAACCALTGGAATTCCAGAATALISTATTIAACTGCCCAGCTCGATACAATAAATTTAACTGCCCAGCTCGATACAATAAA 176 GCCTAACCTGCTTGGTACTTAAGGCGTAACCTCTCTATAAATAA	- ⊼
- BSV-TB Prandel	

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BUBG" AAAC TEGTAAGTGGTSTAAL LACAEGTGGACC CAACC CTAGCTASSTABTAL GTGACCGACC CGAGAAG

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EGCCATTTGACCATTCACCACALIBBIGFGCACCTGGGTTGGATCGATCCATCAICA GCACTCGCTGGGCTTCTTC

TCTCTBCTCGCCGCT3C3CTGCTCCCGGGTCCTCGCGAGGCGCTTGCGCGCCCCCCCC	_	BGIII 	_
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TCTSTBBCG-	2 v v C	SGA	(1)
10 VO	>) C.C. AGG	S =
1C1	က	GAC CTC	<u> </u>

FIG.31C

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	AALTTIGCTGG	

FIG.31D

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 $\frac{1}{2}$ CCACGGEACGIGIGIATASATGI GGGGAAGGACITIGGAGICG: GACAAACACCIICITIAAACCICCATGIGIG GGT GCCCTCCACACATATETACACCCCTTCCTCAAACCTCAGCGTBTTTGTGGAAGAAATTTGGAGGTAEAAC

			2
	PRFVCIDV6KEF6VAI31F1KPPCV VEGES		TCC 3 LETACAGATGTCGGGCTTGCTGCAATAGTGAGGGGCTCCAGTGCATGAACAGGGAGCAGGAGCTACCTCAGCAGCAGCAGCAGCTACCTCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGC
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AAGACGTTATTTGAAATTZCAGTGCCCCTCACTCAGGCCCCCAAACCAGTAACAATCAGTTTTGCCAA"CACA TICTGCAATA4ACTT AATGTCACGGAGAGASTICEGGGG TIGGICATTCITAGTCAAAAEGGTTAGTGAG G C M N J z > ۍ:

L S 0 3 P K P VEGF.2

FIG.31E

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1CCTGCCG4TGCATGTCTAAACTGGATGTTTA2AGACAAGTCATTCCATTATTAGACSITCCTGCCAGGACA	AGGACGGCTACGTACAGATTTGACCTACAAATGTCTCAAGTAAGGTAATGTGCTAGTAGTGCAAGGGACGGTCGTTGT

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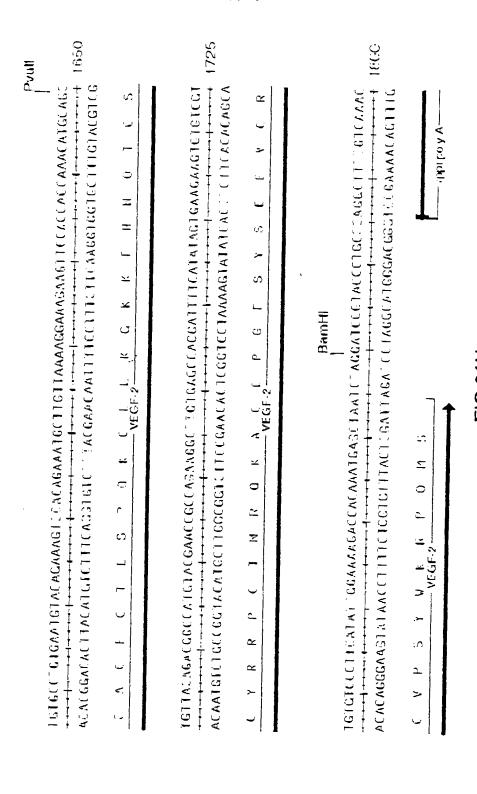
C9E1 +----+ DITEAGGAAGATTITATGITTILCTGBBAIGC GGAGATGACICAACAGATGBALTCLAIGACATGIGGGCA CGASTEEL CTAMAATACAAAAGGAGGETAEGACCTETACTGACTTGTCTACCTAAGGTACTGTAGACACCTGGT - ح ر ر 4 6 D D S T ဟ Ş ľ \Box Ξ A

FIG.31F

1425	1500		1575
PSII AACAAGGAGC (GGATGAAGAGACC GTCAGTGTCTC (GCAGASEGGGC TCGGCCTGCCAGCTGTCACTTCACTTCACTTCACT	A R F L D E E T C D C V C R A G L R P A S C G P H VEGF-2 AAACAACTAGACAACTCATGCCAGTGTCTTGTTAAAACAAAC	R L R D R N S C O C V C K N R L F P S O C 6 A M R	GARTTICATENANACACATSSCACTG, G1/A1G1ANAAGAACCTCCSCAGARTCAACCCTAACCCTAAALCCTGGAAAA CTIAAACTACTTTGGCGGCTACACATATTCTTCGGCGGGGTTTAGGGCGALTTAGGACCTTTT

FIG.31G

- D E H I C O C V C K R I C P R N 3 P L D F G K



AGCACETTTGEGITCTCACTTGGTGGAAGUTCTCFACCTGGTGGGGGGGGGGGGGGFCCTTCTACACACCA TEGTGGAAAEAEEAAGAGTGAAEEACETTGGAGATGGAEEAEACAEECEEETEGEAGTGAAAAAAATATGTGTGGGT ACAGCEC GSEGETT CALC TECTEC GTGTTEC ATTERAGEAC GAGGAETTAAGATAGGGTTEAE GATTGATGGGAEA TIGICTITCACTETIGAGACOTIGIAAATICTGCCCTAGGIGTGGAAGGTCTCAGGCTAACCADIGGGGGCACA TGTCCCGSEGCGAAG GGAGGACCCACAAGGTAAGCTCTGCTCCTGAATTCTATCCCAAGTGCTAACTACCCTCT AACAGAAAGTGDBAACTCTGGAACATTTAACACGGGATEEACACTCCCCAGAGTCCGATTGGTCACCCCCGTGT A ylog idd - 100 Fooly 6 -– uppi poly A– ╌┤╌╸╸╸┤╇╸╸╸╇╸╸╸╸╸╸╸╸╸╸╸╸╸╸

FIG.311

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AAAGALACCO COATOTOTA AAAAAAAAAACAACAACAAAAAAAAAA	2100
tpp_poly_A	
Indy	
GG1GG1GACGGG13GC1AGGCCCCAGGPTAGG1ACCTA11TGGGCACCCCA1AGACCAC1GCAC13Ac1GAGGGA);
CCACCACTGCCACTGGATTTT GGGGTTT TATCCATGGATAAACTTTT GGGGTATTTTT GTGACGTGAL TAATTTTTTT	
V ¥JoC (dd)	
TGGIAACAGGAIGIGIAGGTIITGGAGGCCCAIAICTCCATICATGACTAGIGACT GICICACAGCCATGCAAT	7.00
	10.77

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2550	CAGAACCGCCATCGTGGATCAGGCTGCACCAGCATCTGCTCTCTATCTA
	A ylaq kiçi
2475	Smal 6CAGTECCACAACTGGAAAT LOGGTGBAGGCCCCCGGGGCAGGTGAATTTCAGACCTTGGCACTGGAGGTGGCTTGG CBTCACCGTGTTGACCTCAAGTCAGGCCCCCGGTCACTAGAAAGTCTGGAACCGTGACCTCCACCGGGATT
	teps poly A
2400	TCCTAACTEGATT GTCCTATGTCTCTTTGCTT; TGTGCTGC "GATGCTCTGCCTGTGTTGTA" "GACCTCCTGTGT A A GACCTCCTGTGT A A A GACCTCCTGTGT A A A GACCTCTGTA A A A GAAAACAAAAC
	Ippi pro y A
2326	GRANGEGRACITY CONTRACTORE TO THE WINDS AND THE PROPERTY OF THE

FIG.31K

2776 GCCCALLACTACCTGTCCACCCCTCTGCAAJBAATAAAACCTTTCAAABAGCACTALAAAGTTGTGTACATGC G1CCA1GTGCA1A1B1GG^GCGGGGGGAACATGAG133GGC1GGC?GGAG1GGTCGCGGGC11AATE1A1C^GGGA CACCIACACAIAI ATACCACACCCC FIBLACICACTEBACCBACCBACCICACAGCBCCAAII ABAIABACCBI GCTGTCTAGACGTAATCATGGVCA TAGCTGTTTCCTGTGLGAAATTGTTATCCGCTCACAATTCCACACATA CGACAGA ICTGCATTAGTACCAGATATCGACAAAGGACACACATTTAGGAATAGGCGAGTGTTAAGGTGTTGTGTTTTAT É GAGC CGGAAGC ATAAAGTG1 AAAGC CTGGGGTGCCTAA IGAGTGABSTAAC I CACATTAAT I GCGTTGCGCTSA — 16p. poly A.— - ippi poly A -──┼┈╍╍╸╇╶╸╍╺╸┩╸╸╸╸ PvellXtal

GET C 6 GECTIC GTATTICACATITE GGACCECAC GEATTACT CACTESATTGAGT 6 "KATTAAC GCAAC GEGAST

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GACGCCGBAAAGGTCAGCCCTTTGGACAGCACBBTCGACGTAATTACTTAGCCGGTTGLBTGCCCTTTCCCCC

C1GCCC3(111CCAG1CGCGAAACC1GTC3TGCLAGC=GCATTAA1CAA1CGGCCAA; GCGCGGGGGGGCCCT

PVCI

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TCAGCTCACACAGGGGGTAA7ACGGTTATCCACAGAATCAGGGATAACGCAGGAAAGAACATGTGAAAA ┱┷┫╼╊╗╍┪╶┱┼╗┄╇┧┪╌╗╌╇╌╅╏╅╌╂╌┄╌╌┤╌╅┲╁┼╈┩╶╅┲╌╌┲╌╽┲╍╂╌┪┆┠╺╸┥┱╈┸╅┸╸┸╌╁╌╸┢┪╌╸╁╅╅╌╌╈╸╅┸╸╍┸╸╊╌┦╸╸┩╍┯╸┾ APC GC AT MACICI SI GAGAAGGC GAAGGAGC GAGT GAL TBART GAC GC GAGC C ACC ANGC C CAC III BITT C GC CAT AGICGAGIGAGITTCC SECATIAFGCCAATAGGTGTCTTAGTCECTATEGCGTGTCTTTCTTGTACACTEGTTTT GGCCAGCAAAAGGCCAGGAALEBTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTTGALGAG

FIG.31M

9336 CATCACAAAAAT CGACGCTCAABTCAGAGGTSSSBAAACCCGACAGACTATAAAGATASCAGBCGTTTCCCCL GTAGTGTTTTTAGCTGCGAGTTCAGTCTCCACCGCTTTGGGCTGTCCTGATATTCTATGGGAAAGGGGGG GGAACCICCCICATALGCIC CCIGITCCGACCCIGCCATIÁCGGGAIACCIGICCGCCITICA CCITICAGGA CCPTCBAGGGAGCACGGGAGAGGACAAGGCTGGGACGGCGAATGGCTTA" GGACAGGCGGAAAGAGGGGGAAAGTCT LEGEAL CECEANAGABINTSBABI GEGACATECAIAGAGICAABESAEATECAGEAAGEGADGITCGACEEGATA AGCGTGCCCTTTCTGATABETCACGCTGTAGGTATCTCAGTTE331GTAGGTCGTTCGCTCCAAGCTGG3;161 ╌┊╸┫┡╸╘╺┢╶╏┈╒╶╇╶╇┈╇┈╇╸╸╣╍╸╇╸╾┼┩╺╾╶╸╺╍╌┩╼╌╸╇╌┡┤╍╸ ╼╌┪╶╏╌┆╴╘╌┢╌┤╌╬╌╬┄╬╶╘╍╘┄╏╌╸╌╸╸╸┩╴╇╸╘╌┇╺╬╌╬╌╬╌╇╸╇╌╏╌╇╸╇╌╏╌╇╸╬╌╇╌╬╌

3525 G1GCTSAATAGCGG1GACCGTCGG13ASCATTG1CCTAATCCTCGCTCCATACATCCGCACGACGTCTC

CACGACTIA COCCACTOGOAGEAGEAGEAGTBGTAACAGGATTAGEAGAGEGAGGTALGTAGGGGGTCCTACAGAG

316CACGAACCCCCCG11CAGCCCCGAACCGC "GCGCCTTATCCGGTAACTATCGTCT"GAGTCCAACCCGGTAAGA

LAEGTGCTTGGGGGGCAAGTCGGGTTGGCGAGGGGGAATAGGCCATTGATAGGTAGTAGTGGTAGGTTGGGTTGGGTAG

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ACCITECITITICAGI GCAN LICCC AAAACCAGTACI CIAATA 30 ABCI GG* 1 LCGCC GGTAGCAC GSAGGGGFG

TGGAAGGAAAACTCACSTIAAGGGATTITGGTCATGAGATTATTGTG GACCAAAGCGGCCATGGTGCTTTTTCAC

Sall

AAGCAGCAGCAGALTACGCGCAGAAAAAAAGGATCTCAAGAABATCCTTTGATCTTTTCTACGGGGTTTGACGCTCAG TTGITGITANIBLECERTETTINITICTAGAGITCT LETAGGAAACTAGAAAGAGAGGCCCCAGALTGCGAGTC ACCTIC BEBARAACACTICCIAGCIC ITGALE CBGCAAACAAACCAC GCTGGTAGCGGTGGTT TITTGTTTGC

TIETT GAAGTGGTGGCCTAACTAC SSETACAC LAGAAGAAC AGTATITGGTATETGGGTTCTGCTGAAGTCAGTTATA AABAATTT CACCACCEGATTGATGCC3ATGTGA" CTTCTTGTCATAAACCATA3AEGEGAGACGACTTCGGTCAA TECT GE AGTI CEGGGGEATGEGATGEGE GECCATAGE CEGTGET GGTTTECT GGGATGE CEGATGTGEATTTGCAETGG

NGGACGTCAAGCCCCCCTACCTACGCCTATCGCCGACGACGAAGGACTTALGGCTGCCTAAACGTGACGGCC

C111CAIAGAAGGCGGC331GGAAFCGGAATCTCGTGATGGCASGTIGGGCGTCGCTTGGTCGCTCGTTGGAAC

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TAGABET LE GEGAGGTE GTCE AGEETEAGGEAGET GAAEEAACTEGEGAGGGGATF GAGEETEGGG ATCTYGABGUGUTUU AGU KGG LUGGAGTUUGTUBAKUT GATTGAGUGUTUUUTAAFTT GOGU UUUAGU PHCAACTUCABS AT GAGATOOCOGGOOGGATOATS CAGOOGGOOGGOOGGOOGGOAAAG GATTEOGAAGOOOGA TICTTGAGGTCGTATTTTAGGGGCGCGACCTCCTAGTADDITGGCCGCAGGGCCTTTTGCTAABBLTTCGGGTTG Smal PvcII ┈┤╌╸╒╶╘╶╒╶╒╶╒╶╞╶╒╶┇╌┇╌┇╶┇╸┇╸┇╸┇╸┇╌┇╸╒╸╒╸╒╸┇╸┇╸┇╸┇

FIG.31P

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ELEAGAGTELECTTEAGAAGAGTTEBLEABAAGGEEATAGAAGGEGBATBFBFBFBFBCGGAATTEGGAAGGEGATAT	1500	SEGICT CAGGCEAGTETTCTTBASE AGTTCTTC GETATCTTCC GCTATSE GA CGCTTALCCTCGCCGCTATG		

CGTAAAGCACGAAGCCETCAGCCATTEGCCGCAAGCTCTTCAGCAATATCAGGGGAAGCCAACGCTATGT CCATTTGGTGCCCTTCGCCATTEGCCGCAAGCTCTTCAGCAATATCAGGGGAACCCAACGCTATGT CCATTTGGTGCCCTTCGCCATTGGCGGTAAGGGGGGCTCGAGAGTCGTTATAGTGTCCATACGCTTGCGATACA Y L V L F F F F A W C G G L E E A I A R I A L A I C		4575	
CGTAAAGCACGAGGAGCCCACAGCCCATTCGCCAAAGCTCTTCAGCAATATCAGGGGAGCCAACGCTATG CCATTTGGTGC CCTTCGCCAGTCGGTAAGTGGCGAGCTCTTCAGCAATATCAGGGGAGCCAACGCTATG CCATTTGGTGC CCTTCGCCAGTCGGGTAAGTGGCGGGGTCGAGGCCTTATGTGTGTCCTTGCGTTGCGTTGCGTTATA	9	F 1 8	1 4
CGTAAAGCACGAGGAGCCCTCAGCCCATTGGCCAAAGCTCTTCAGCAATATCAGGGGAGCCAACGCCAATATGAGGGAACCCAACGCCAATATGAGGGAACCCAACGCCAATATGAGGGAACCCAACGCAATATGAGGGAACCCAACGCAATATGAGAGAACAAAACGAAAAACGAAAAAACGAAAAAAAA	-	1 / / [/ / / / / / / / / / / / / / / /	_
CGTAAAGCACGAGGAGCCCACAGCCCATTGGCCAAAGCTCTTCAGCAATATCAGGGGAGCCAAAAGCCAATATCAGGGGAAGCCAAAAGCCAAAAAGCCAAAAAAGCCAAAAAA	∢	000	<
CGTAAAGCACGAAGCCETCAGCCATTEGCCGCAAGCTCTTCAGCAATATCAGGGGTAGCGCATTTGGTGCCCTTAGTGCTCATTGGTGTTCATTGGTGTCATTGGTGTCATTGGTGTCATTGGTGTTCATTGGTGTCATTGGTGTGTGT	4	\$ 	_
CGTAAAGCACGAAGCCETCAGCCATTEGCCGCAAGCTCTTCAGCAATATCAGGGG CCATTTGTGCCCTTCGCCATTGGCGGTAAGGGGGGTCGTCTTCAGGGGGTCATATAGTGTCA Y L V L F F F F A W C G G L E E A 1 D R 1	۵.	7CC	
CGTAAAGCACGAGCCETCAGCCCATTEGCCGCCAAGCTCTTCAGCAATATCAEGCCATTTGTGCCCTTAGGGGGGGGGG	-	66: CCA	-
CGTAAAGCACGAGGCCCTCAGCCCATTEGCCGCCAAGCTCTTCAGCAATATC CCATTTGGTGCCCTTCGCCAGTCAGCTCCTTCAGCAATATC CCATTTGGTGCCCTTCGCCAGTCGGGGGGTCGAGGTCGTTATAG Y L Y L F F F A M C G G L E E A I A	ره	ACG 180	~
CGTAAAGCACGAGGCAGCCCACAGCCCATTEGCCGCCAAGCTCTTCAGCAAT CCATTTGTGC CCTTCGCCAGTCGGTAAGEGGCGG CGAGAGCTCGTTA Y L Y L F F F D A W C G G L E E A T	c	A10	_
CGTAAAGCACGAAGCCENCAGCCCATTEGCCGCCAAGCTCTTCAGC CCATTTGGTGC CCTTCGCCAGTCCGGTAAGEGGGGG	ے	AAI TIA	_
CGTAAAGCACGAAGCCCACAGCCATTGGCCGCCAAGCTCTTC CCATTTGGTGCCCTTCGCCAGTAAGGGGGGTCGAAGCTCTTC Y L Y L F F F D A W C G G L E E	-	ACC.	<<
CGTAAAGCACGAAGCCCACAAGCCCATTGACGCCAAGCTCCAATTGATGCCCCAAAGCCCAAGCCCAAAGCCCAATTGATGAAAGCCCAAAGCCCAATTGATGAAAAAAAA	γ. Jue	11C	<u> </u>
CGTAAAGCACGAAGCCETCAGCCATTGGCCGCAAG	-	9V9	ω
CGTAAAGCACGAAGCCETCAGCCCATTEGCCGCCCCATTTGTCGCCGCCCCCATTTGTCGCCGCCATTTGTCGCCGCGCATTTGTCGCCGCGCGCG	~	AAAG	
CGTAAAGCACGAAGCCETCAGCCCATTEGCC CCATTTEGTGCTCTTCGCCAGTCGGGTAAGEGG	=	993	ا ي
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CGTAAAGCACGAAGCCETCAGCCCA CCATTIIGIGCTCTTCGCCAGTCGGGT	-	11.0 AAS	ت ا
CGTAAAGCACGAGGCCETCAGCCCTCAGCCCTCAGCCCTCAGCCCTCAGCCAGTCCCTTTGCCCAGTCCCTTTGCCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCTTTGCCAGTCCCAGTCCCTTTGCCAGTCCCTTTGCAGCCCTTCAGTCAG	ے	CC A GGT	3
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CCTGATAGCSGTCC6CCACACCCAGCCGCCACATCGATGAATCCAGAAAAGCGGCCATTTTCCACCATGATAT

FIG.31Q

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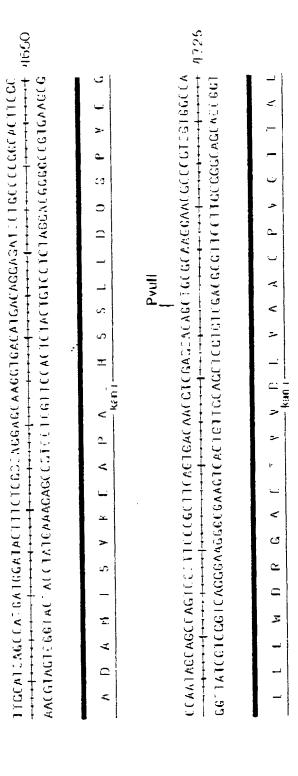
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GITGGGLISGUGGGGGGGGTGCTGGTGTGTGCGGGGGGGGGGGGGGGG	4425	4500	9291
	NEDI 1 CGGCAAGCAGGCATCGCCATGGGATCAGGACGAGATCCTCGCCGTC33GTATGCGCGCCTTGAGCCTGGCGAAFA AGGCGT CGTCCCTAGGGATGCTGTTCTAGGAGCGGCAGCCC31ALGCGCGCAACTCGGACCCTTGT AGGCGT CGTCCCTAGCGGTACCCAGTGCTGTCTAGGAGCGGCAGCCC31ALGCGCGCAACTCGGACCCTTGT	GITGGCISGCGCGCCCICATGCICTCGTCGAGACCTGATCGAGACCGGIVICCATCCAGVACCGAGCGGGVTCCAGVACCAGCAGCAGCGGGVTCCAGCAGCAGCCGGGCTAGCTCATCCAGCAGCCGGGCTAGCTCATCGAGCCGGCTCATG	F A P A . G O H E E D L D D O D V L G A E H R 1 B G.GC.ICGC.ICGAIGCGAISIIICGC ** GGIGC.ICGAIGGGCAICAAGCCIAIGCAGC.ST.I.GCA CALGAGCGACCIACGC.IACAAGGGAACCACCAIACCGICCAIGGGCCIAIGGGCAICCCAIACGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGC

FIG.31R

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TATCBBAGAEG" GGGTTCGCCGGCCTCTTBGACGCACGTTAGGTAGAACAAGTTAGTAGTAGTAGGTTAGTAGGTTAGTAG

ATABETHE COAFOLABEGGGCGGGGGGGANFILIGOG GCAATOCATO FIGNICAATEAGGGAAAAGATOCATO

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1875 4E(iC GCC ACGATAGEEGE GEOOF COTECTECAGTECATTEAGGGC ACTGGACAGGT CGGTETTBAUAAAAAGAAC G COOTECTATESSEDE GALGGAGEACEACGICAAGIAASIIIEGEGGGCIGICEACCEACAGAAFIGIIIITETIGEE ت ₹ <u>--</u> 0 ယှ ت ی ⋖. ა ი v - 2 PsII ~ Ū = ~ ٠-. ₹ ے 3

FIG.31T

TEGERAL GEGGACTENT GAAF GEEGEAC

AGCCCTTGCGCCCTGASTGCT GCGGCAGCCTG

GECTCATCGACTGT NABTAGGCCCCCAGTCGTGGCAAAGASGCTBACCGAAAGATCCACAAGGSSAAGGAAATCG

GAT CGATABEGGTACA" T CGGG IGACGT I CGAT SSAEGAAAGAGAAACGCGAACGCAAAGGGAACAGGTCTAT C CCCAGTAGCTGACATTCATCCGGGGTCAGCACCGTTTCTGCGGACTGGCTTTCTACGTGTTCCTACGTGTTCTG

CTAGETATEGECA) GYAKGECCCACTGCAA3CTAEFTGCTTTCTCTTTGCGCTTGCGTTTTCCCTTGTCCFATAG

ABBECTTIC CAACCTIACCAGABBECECCCAGC GGCAATTCCGGTTCBTTTGCGCTTCGTTAAACCGCCAGT Pvul

FULLGAAAGGGT GGAATCGTCTCCC ZEGGGTCGACCGTTAAGGCCAAGCGAACGAEAAETTTTGGCGGGTCA

GACAGAGAACTAGTCTAGAACTAGGGGALGCGCTAGTCTAGGAACTGCCC" CTTTCGTAGGTCAAATGAAACG

CTGTCTCTTGATCAGATCTTGATCCCCCTGCCCCATCAGATCTTTGGCGGCAAGAAAGCCATCCA3TTTACTTTGC

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- 5. Fax Cover Sheet (1 page);
- 6. Fee Transmittal with appropriate fee (1 page);
- 7. Petition Under 37 C.F.H. § 1.137(b) for Revival of an Unintentionally Abandoned Application (4 pages) with Exhibits A (1 page), B (10 pages), and C (74 pages); and
- 8. Certificate of Transmission (1 page).